

What is claimed is:

1. A method of mitigating interference among communications signals, the method comprising:
 - 5 providing a first pair of interconnects configured to support conveyance of a differential mode communication signal;
 - providing electronic circuits that operate to support conveyance of a non-differential mode communication signal on the first pair of conductive paths; and
 - conveying the non-differential mode communication signal on the first
10 pair of interconnects to mitigate interference among other communication signals.
2. A method as in claim 1, wherein providing the first pair of interconnects involves providing a backplane upon which the first pair of interconnects are configured as circuit traces to support conveyance of the differential mode communication
15 signal;
 - wherein providing the electronic circuits involves providing a transmitter circuit board including a transmitter circuit thereon, the transmitter circuit board coupling to the first pair of interconnects on the backplane to support transmission of the non-differential mode communication signal; and
 - 20 wherein providing the electronic circuit involves providing a receiver circuit board including a receiver circuit thereon, the receiver circuit board coupling to the first pair of interconnects on the backplane to support reception of the non-differential mode communication signal.
- 25 3. A method as in claim 2, wherein providing the transmitter circuit board includes providing a first filter circuit in communication with at least one of the interconnects of the first pair of conductive paths; and
wherein providing the receiver circuit board includes providing a second
filter circuit in communication with at least one of the interconnects of the first
30 pair of conductive paths.

4. A method of mitigating interference among communication signals, the method comprising: ✓

5 providing a first pair of interconnects configured to support conveyance of a first pair of differential mode communication signals in which a corresponding first signal and second signal are balanced and opposite in polarity with respect to each other;

10 providing a transmitter circuit to support generation of a second pair of unbalanced communication signals which are substantially different than the first pair of differential mode communication signals; and

15 conveying the second pair of unbalanced communication signals on the first pair of interconnects instead of the first pair of differential mode communication signals to mitigate interference with a second pair of conductive paths.

5. A method as in claim 4 further comprising:

20 providing a receiver circuit that is coupled to the first pair of interconnects to receive the second pair of unbalanced communication signals, the receiver circuit including a receiver device that is configured to receive common-mode communications instead of differential mode communications.

6. A method as in claim 4, wherein providing the transmitter circuit includes providing a first filter circuit in communication with at least one of the interconnects of the first pair of conductive paths, the method further comprising:

25 providing a receiver circuit to receive the second pair of unbalanced communications signals, the receiver circuit including a second filter circuit in communication with at least one of the interconnects of the first pair of conductive paths.

- 30 7. A method as in claim 4, wherein providing the transmitter circuit involves:

operating the transmitter circuit to support generation of the second pair of unbalanced communication signals, the second pair of unbalanced communication signals including a first signal and a second signal having substantially different voltage magnitudes relative to each other.

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8. A method as in claim 4, wherein providing the first pair of interconnects involves providing a backplane upon which the first pair of interconnects are configured as circuit traces to support conveyance of the first pair of differential mode communication signals; and

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wherein providing the transmitter circuit involves providing a circuit board including the transmitter circuit thereon, the circuit board coupling to the backplane to support transmission of the second pair of unbalanced communication signals on the first pair of interconnects instead of supporting transmission of the first pair of differential mode communication signals.

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9. A method as in claim 8, wherein conveying the second pair of unbalanced communication signals on the first pair of interconnects enables the transmitter circuit to transmit information at a higher rate than when otherwise conveying the information via use of the first pair of differential mode communication signals.

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10. A method as in claim 4, wherein conveying the second pair of unbalanced communication signals involves:

generating the first pair of differential mode communication signals at the transmitter circuit;

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via at least a portion of the transmitter circuit, reducing a magnitude of an AC (Alternating Current) component of a first signal in the first pair of communication signals to support producing the second pair of unbalanced communication signals.

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11. A method as in claim 10, wherein providing the transmitter circuit includes:

providing a filter circuit in communication with at least one of the interconnects of the first pair of conductive paths, the transmitter circuit supporting generation of the second pair of unbalanced communication signals that would otherwise be balanced communication signals without the filter circuit.

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12. A method as in claim 11, wherein providing the transmitter circuit includes:
configuring the filter circuit to include discrete electronic components that are electrically coupled to one of the interconnects of the first pair of conductive paths.

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13. A method as in claim 4, wherein providing the transmitter circuit includes:
providing a filter circuit that is electrically coupled to at least one of the interconnects of the first pair of interconnects to support producing the second pair of unbalanced communication signals that would otherwise be balanced differential mode communication signals without the filter circuit.

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14. A method as in claim 4, providing the transmitter circuit includes:
replacing a differential mode driver, that if otherwise used would transmit the first pair of differential mode communication signals, with a common-mode driver to produce the second pair of unbalanced communication signals including a first signal and second signal that are substantially similar to each other.

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15. A method as in claim 4, wherein providing a transmitter circuit includes providing a software programmable transmitter device including at least one filter that is selectively configured to support one of:

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- i) differential mode communications,
- ii) common-mode communications, and
- iii) single-ended mode communications.

16. A method as in claim 4, wherein conveying the second pair of unbalanced communication signals involves transmitting first and second signals, similar in both magnitude and polarity, on each conductor of the first pair of interconnects instead of the first pair of differential mode communication signals to support common mode communications.

17. A method as in claim 4, wherein conveying the second pair of unbalanced communication signals involves:

generating the first pair of differential mode communication signals;

via a filter in the transmitter circuit, substantially eliminating a magnitude of an AC (Alternating Current) component of a first signal in the first pair of differential mode communication signals to produce the second pair of unbalanced communication signals that support single-ended mode communications instead of differential mode communications.

18. An electronic system configured to mitigate interference among communications signals, the electronic system comprising:

a first pair of interconnects that are configured to support conveyance of a first differential mode communication signal, the first differential communication signal comprising a balanced first signal and corresponding second signal of opposite polarities;

a transmitter circuit coupled to the first pair of interconnects to support generation of a second mode communication signal that is different than the first differential mode communication signal;

a receiver circuit coupled to the first pair of interconnects to receive the second mode communication signal; and

wherein the first pair of interconnects convey the second mode communication signal instead of the first differential mode communication signal to mitigate interference with a second pair of interconnects on the circuit board that convey another communication signal.

19. An electronic system as in claim 18, wherein the first pair of interconnects are disposed on a backplane, the electronic system further comprising:
- 5 a transmitter circuit board including the transmitter circuit thereon, the transmitter circuit board connected to the backplane;
- a receiver circuit board including the receiver circuit thereon, the receiver circuit board connected to the backplane; and
- wherein the transmitter circuit transmits the second mode communication signal to the receiver circuit over the first pair of interconnects of the backplane.
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20. An electronic system as in claim 19, wherein the transmitter circuit includes a first filter circuit in communication with at least one of the interconnects of the first pair of interconnects in the backplane; and
- wherein the receiver circuit includes a second filter circuit in
- 15 communication with at least one of the interconnects of the first pair of interconnects on the backplane.
21. An electronic system as in claim 18, wherein the first pair of interconnects form part of a data bus that conveys bit information from the transmitter circuit to the
- 20 receiver circuit.
22. An electronic system as in claim 18, wherein the second mode communication signals is a pair of unbalanced communication signals including a first signal and a second signal having substantially different voltage magnitudes relative to each
- 25 other.
23. An electronic system as in claim 18, wherein the second mode communication signals support conveying information on the first pair of interconnects at a higher rate than the differential mode communication signals.
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24. An electronic system as in claim 19, wherein both the transmitter circuit and receiver circuit each include filters comprising discrete electronic components, the filters at least partially causing a differential mode communication signals transmitted by the transmitter circuit to be conveyed as second mode communication signals on the interconnects of the backplane.
25. An electronic system as in claim 18, wherein the transmitter circuit and the receiver circuit each include respective software programmable transmitter and receiver devices that are selectively configurable to support one of:
- i) differential mode communications,
 - ii) common-mode communications, and
 - iii) single-ended mode communications.
26. A method to support mitigating interference among communication signals, the method comprising:
- receiving coupling characteristics associated with interconnects that convey the communication signals;
 - via simulation, calculating an effect of applying different combinations of filters to the conductive paths; and
 - selecting one of the combinations of filters to mitigate interference of the communication signals on the conductive paths.
27. A method as in claim 26, wherein receiving coupling characteristics comprises:
- receiving coupling characteristics associated with the interconnects based on electronic measurements indicating a degree to which communication signals couple from one set of interconnects to another.
28. A method as in claim 26, wherein receiving coupling characteristics comprises:
- estimating coupling characteristics associated with the interconnects based on an analysis of a physical layout of traces on a circuit board conveying the

communication signals to quantify a degree to which communication signals theoretically couple amongst one another.

29. A method as in claim 26 further comprising:

5 applying the selected one of the combinations of filters to corresponding line cards including transmitter circuits and receiver circuits, the line cards being used to respectively transmit and receive corresponding communication signals on the conductive paths, the interconnects being disposed on a backplane to which the line cards are connected.

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30. A computer system to support mitigating interference among communication signals, the computer system including:

a processor;

a memory unit that stores instructions associated with an application
15 executed by the processor; and

an interconnect coupling the processor and the memory unit, enabling the computer system to execute the application and perform operations of:

receiving coupling characteristics associated with interconnects
that convey the communication signals;

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via simulation, calculating an effect of applying different combinations of filters to the conductive paths; and

selecting one of the combinations of filters to mitigate interference of the communication signals on the conductive paths.

25 31. A computer system as in claim 30, wherein receiving coupling characteristics comprises:

receiving coupling characteristics associated with the interconnects based on electronic measurements indicating a degree to which communication signals couple from one set of interconnects to another.

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32. A computer system as in claim 30, wherein receiving coupling characteristics comprises:

estimating coupling characteristics associated with the interconnects based on an analysis of a physical layout of traces on a circuit board conveying the communication signals to quantify a degree to which communication signals theoretically couple amongst one another.

33. A computer program product including a computer-readable medium having instructions stored thereon for processing data information, such that the instructions, when carried out by a processing device, enable the processing device to perform the steps of:

receiving coupling characteristics associated with interconnects that convey the communication signals;

via simulation, calculating an effect of applying different combinations of filters to the conductive paths; and

selecting one of the combinations of filters to mitigate interference of the communication signals on the conductive paths.

34. An electronic system configured to mitigate interference among communications signals, the electronic system comprising:

a first pair of interconnects configured to support conveyance of a first pair of differential mode communication signals;

means for supporting generation of a second pair of non-differential mode communication signals which are substantially different than the first pair of differential mode communication signals; and

the first pair of interconnects conveying the second pair of non-differential mode communication signals instead of the first pair of differential mode communication signals to mitigate interference with a second pair of conductive paths.